# A new species of *Leionema* (Rutaceae) from south-eastern New South Wales

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## Abstract

*Walsh, N.G. (Royal Botanic Gardens, Birdwood Ave, South Yarra, Victoria 3141, Australia) 2004. A new species of* Leionema *(Rutaceae) from south-eastern New South Wales.* Telopea *10 (4): 805–810.* A new species, **Leionema ceratogynum**, is described from montane to subalpine localities in south-eastern New South Wales. Specimens of this species were previously included in *L. phylicifolium*. The new species is discussed in relation to *L. phylicifolium* and *L. lachnaeoides*. It is illustrated and its ecology and conservation status are discussed.


## Introduction

In an investigation into the variation of *Leioneua phylicifolium* (F. Muell.) Paul G. Wilson, a number of specimens of a distinct taxon were encountered, apparently confined to Wadbilliga National Park and occurring in different plant communities from those usually occupied by *L. phylicifolium*. No mention was made of this taxon in the *Flora of New South Wales* (Weston & Porteners 1991, Weston & Harden 2002). Wilson (1998) made reference to what is probably this taxon in notes under *Leioneua lachnaeoides*, but referred specimens representing it to *L. phylicifolium*. The opportunity is here taken to recognise formally this entity.

**Leionema ceratogynum** *N.G. Walsh*, **sp. nov.**

A *L. phylicifolia* ovario manifeste rostrato glabro vel pilis simplicibus vestito, foliis scabridiusculis supra costis prominentibus infra differt. A *L. lachnaeoide* inflorescentibus trifloris, foliis majoribus marginibus minus revolutis pagina supra scabridiuscula vice scabra differt.

**Type:** AUSTRALIA: New South Wales: Wadbilliga Fire Trail, Wadbilliga National Park, *T.R. Lally 185*, 28 Oct 1993; holo CANB; iso MEL, NSW.

Dense shrub to c. 2.5 m high; branchlets strongly ridged by leaf decurrencies when young, stellate-puberulous with hairs 0.3–0.5 mm long; hairs retained for several years. Leaves oblong-elliptic, (8–)12–21(–30) mm long, 1.3–2.5 mm wide, apex acute to obtuse, sometimes very shortly apiculate; upper surface minutely scabridulous by the raised epidermal cells, and somewhat tuberculate by the raised oil-glands, glabrous or with very sparse, scattered stellate hairs; lower surface smooth, white stellate-puberulous, sometimes with a few longer hairs along the raised midrib; margin revolute; petiole 1.5–3 mm long. Inflorescence a compact axillary triad (rarely a single flower), produced along distal 5–15 cm of branches; peduncles and pedicels glabrous, or very sparsely indumented with hairs like those of subtending branches; peduncles 0–1 mm long, terminated by 2 pairs of narrowly triangular, hispidulous bracts 0.5–1.3 mm long; pedicels 1–2 mm long, each with 1 or 2 narrowly triangular bracteoles 0.4–0.7 mm long in the proximal half. Calyx obturbinate, 1–1.5 mm long, glabrous, lobes deltoid, about half the length of the entire calyx; petals valvate, narrow-elliptic, 4.5–5 mm long,


Fig. 1. Type specimen of *Leionema ceratogynum* (*Lally 185*, CANB).

pale yellow, glabrous, gland-dotted; stamens 6–8 mm long; style slightly shorter than or equal to stamens; disc not apparent; ovary glabrous or with a few simple hairs to c. 1.5 mm long, rarely villous, each carpel terminated by a linear sterile process (rostrum) 1.5–2 mm long at anthesis. Follicles 5 or fewer by abortion, erect, the fertile portion ± ellipsoid, 3.5–4 mm long, the sterile process 3–4 mm long at maturity. Seed D-shaped to slightly reniform, 2.5–3.3 mm long, angled dorsally, testa shining dark brown, smooth or obscurely patterned with low tubercles, raphe (sensu Wilson 1998) shield-like, c. 1.5 mm long and wide, appressed to testa.

**Distribution:** Known only from a small area within Wadbilliga National Park in the catchments of the Brogo and Wadbilliga Rivers, east and north-east of Kybean (ESE of Cooma). Populations have been recorded over a linear range of about 11 km.

**Habitat:** Structural communities in which *L. ceratogynum* occurs have been described on herbarium sheets as open forest, scrub, mallee and heath with common associates *Eucalyptus fraxinoides, E. kybeanensis, E. paliformis, Acacia obliquinervia, Banksia canei, Leucopogon lanceolatus, Oxylobium ellipticum* and *Tasmannia lanceolata*. Soils are sandy loams derived from Devonian sediments. Most populations occur on or near the ridgeline. The altitudinal range is from c. 1100 to 1300 m a.s.l.

**Conservation status:** All populations known to me are contained within Wadbilliga National Park. No herbarium specimens seen to date indicate precise population numbers, but extrapolating from populations seen by me in January 2004, an estimate of 300–2000 individuals distributed between about 5 populations seems reasonable. On the basis of these estimates, the conservation status is assessed as 2Vat or 2Rat (sens. Briggs & Leigh 1996) or VU (sens IUCN 1994). Given that these plants are almost certainly obligate seed regenerators, the most likely threat to populations would appear to be successive fires with insufficient time between to allow for replenishment of the soil seed bank.

**Etymology:** The epithet is from the Greek (*ceras* = horn & *gyne* = female) and alludes to the prominently beaked carpels. Although not a unique character within *Leionema* it is chosen to emphasize the difference between this species and its presumed nearest relative *L. phylicifolium*.

**Notes:** Differs from *L. phylicifolium*, to which it appears most closely related, in the beaked carpels and follicles, in the slightly roughened leaf upper surfaces with more prominent oil glands (in fresh and dried material), and in the longer indumentum and raised midrib on the leaf lower surfaces. When present, the hairs on the ovary of *L. ceratogynum* are relatively long (to c. 1.5 mm) and simple, in contrast to the fine stellate furze (under 0.2 mm long) characteristic of *L. phylicifolium* (very rarely the ovary is glabrous in *L. phylicifolium*). Different plants within the same population of *L. ceratogynum* may have either glabrous or villous ovaries.

The terminal sterile appendage on the ovary and follicle, and the scabridulous foliage suggest a relationship with *L. lachnaeoides*, a localised endemic in the Blue Mountains, but that species differs significantly from *L. ceratogynum* (and *L. phylicifolium*) in having single-flowered inflorescences. The leaves of *L. lachnaeoides* are generally smaller (to c. 15 mm long, 1 mm wide) than those of *L. ceratogynum*, usually slightly arcuate, more pronouncedly scabrous and have margins more strongly revolute (usually obscuring the entire lower surface).

In its generally dry, elevated habitat, *L. ceratogynum* differs from *L. phylicifolium* which is typically a species of margins of watercourses or lower valleys in subalpine areas. In some instances *L. phylicifolium* occurs on low ridges (e.g. Mt Jagungal region of Kosciuszko National Park, New South Wales and Mt Cobberas in the Alpine National Park, Victoria) but these sites are at higher elevations (above 1500 m a.s.l.) than those

**Fig. 2** Flowers of *L. ceratogynum* showing rostrate carpels (glabrous form) (*Lally 185*, CANB).

**Fig. 3** Developing fruits of *L. ceratogynum* (form with villous gynoecium) (*Telford 3660*, CANB).

occupied by *L. ceratogynum* and receive higher effective precipitation. Typical *L. phylicifolium* occurs within 10 km of the type locality of *L. ceratogynum*. The habitat of *L. lachnaeoides* in the Blue Mountains is perhaps more comparable to that of the new species, being principally in drier, elevated habitats (to c. 1000 m a.s.l.) on shallower soils derived from sandstone.

**Selected specimens examined** (Precise locality details withheld): New South Wales, Southern Tablelands; Wadbilliga National Park (all): *A.M. Lyne 1248, I.R. Telford & A. Young*, 23 Sep 1993 (AD, BISH, BRI, HO, MEL, NSW, PERTH); *I.R. Telford 3660*, 19 Nov 1973 (BRI, CANB, MEL, NSW, PERTH); *I.R. Telford 3656*, 19 Nov 1973 (A CANB, K, L, NSW, PERTH); *A.N. Rodd 6171, M. Kennedy & A. Whitehead*, 25 Jan 1991 (CANB, NSW, P); *M.F. Duretto 712*, 1 Oct 1995 (MEL, NSW PERTH); *J.D. Briggs 1826 & P.H. Weston*, 27 Mar1985 (CANB); *N.G. Walsh 6009*, 12 Feb 2004 (CANB, MEL, NSW); *M.D. Crisp 1236 & I.R. Telford*, 30 Sep 1975 (AD, BRI, CANB, MO); *M.D. Crisp 1241 & I.R. Telford*, 30 Sep 1975 (CANB, NSW, PERTH); *P. Gilmour W070*, 23 Apr 1983 (CANB); *P. Beesley 351 & D. Binns*, 27 Mar 1985 (CANB).

The key to *Leioineua* in Weston and Harden (2002, p. 306) may be modified to include *L. ceratogynum* by replacing lead '5*' with the following:

5* Apex of leaves entire, leaves 0.8–2(–3) cm long, margins entire; inflorescences usually < 10 mm long, 1–3-flowered

6 Ovary globose, white stellate-pubescent or rarely glabrous; ripe follicles obtuse or apiculate, to 3.5 mm long; leaves smooth; southern alpine and subalpine regions (ST) ..... **2 L. phylicifolium**

6* Ovary rostrate, glabrous, pilose or rarely villous; ripe follicles 6 mm long or more; leaves minutely scabridulous

Fig. 4. Dehisced follicles of *L. ceratogynum* (Walsh 6009, MEL, photographed *in situ*).

6a Inflorescences 3-flowered, rarely some (never all) 1-flowered; leaves straight, mostly 12–21 mm long, undersurfaces apparent; Kybean area (ST) ..... **2a L. ceratogynum**

6a* Inflorescences 1-flowered; leaves slightly up-curved, mostly 7-15 mm long, undersurfaces mostly obscured by revolute margins; Blue Mountains (CT) ..... **3 L. lachnaeoides**

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## References

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